

## ABSTRACT

A flow-through electrochemical cell assembly with a disposable working electrode structure, including (a) a perimeter wall defining a sample flow channel including an inlet and an outlet, (b) a sample inlet line in fluid communication with the sample flow

- 5      channel inlet, (c) a sample outlet line providing fluid communication between the sample flow channel outlet and a remote reference electrode, and (d) a disposable working electrode structure comprising an electrically conductive and electrochemically active working electrode region bound as a layer, directly or indirectly, to an electrically insulating substrate surface. The substrate surface is in
- 10     fluid-sealing relationship with the sample flow channel, and the working electrode region is in fluid communication with said sample flow channel. The working electrode is vapor deposited, directly or indirectly, onto the organic polymer substrate through a mask, and a fluid seal is formed between said working electrode region and perimeter wall.